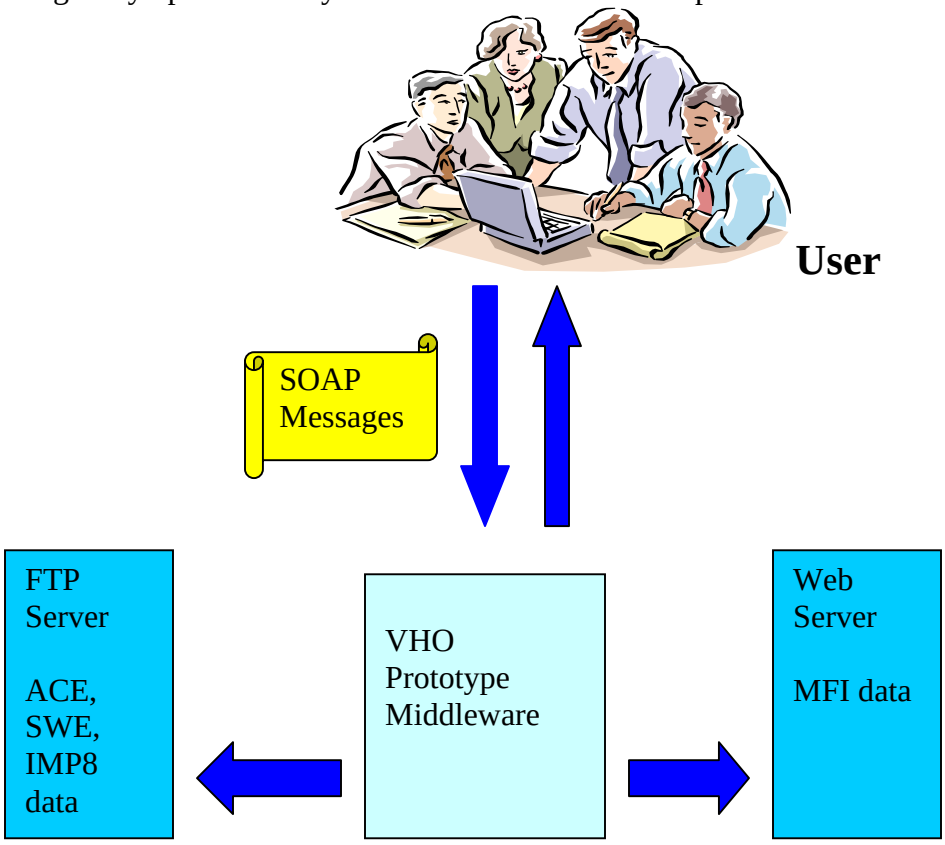
VHO Prototype 8/3/2004

The VHO prototype is a distributed system consisting of three computers. Two of the three serve data while the third acts as a "middleware", receiving and processing messages from users. This middleware receives messages from users asking for certain functionality, transparently interacts with the data machines and returns the results to the user. At present, five datasets are being served/tested: WIND MFI, WIND SWE, IMP8 MAG, ACE SWEPAM, and ACE MAG. These five datasets are distributed over the two data serving machines, one of which is a web server and the other an FTP server. They are regularly updated via synchronization with the data provider sites.



As shown in the above figure the messaging between the user and the middleware is done using Simple Object Access Protocol (SOAP). SOAP messages are XML based and serve as a standard communications mechanism. The intent is that the user needs only one interface, the middleware, to communicate with multiple datasets and services. Any differences in accessing data or using middleware services are hidden from the user. The user simple sends a SOAP message with the required inputs for a given functionality and the middleware transparently performs the service and returns the results to the user.

At present the middleware performs four basic services as well as a query function. The query allows users to find data based on date and/or spacecraft position. This query function, along with the four basic functions are detailed in the document api.pdf.

Future expansion of the prototype will include data processing services such as coordinate transforms, re-averaging and merging of datasets. These data processing services will exist as a peer-to-peer network which will communicate to the middleware via SOAP messaging.